

Strategies for Green Reaction Chemistries: Application of Green Catalysis and Process Intensification

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An intramural research effort within the Sustainable Technology Division (STD) is focused on the development of novel technologies for the synthesis of chemicals in a green and sustainable manner. To extend on the scope of green chemistry, this research also incorporates engineering concepts at the bench level to further strengthen the concept of environmental sustainability. As a result, the Sustainable Chemistry Program has achieved broad experience and expertise in designing and developing environmentally friendly chemical processes. These in-house research efforts have led to the establishment of Cooperative Research and Development Agreements (CRADAs) with industrial partners to develop and commercialize green and sustainable chemistries in the area of industrial chemical synthesis. Two such projects to be presented will demonstrate the development of a novel catalyst for the efficient and selective oxidation of hydrocarbons with molecular oxygen and the use of a novel reactor technology designed to increase the rate, yield, and selectivity of a chemical reaction.